



Green Mark

Dry Type Transformers

General No. : 75

Classified No. : B-02

1. Scope

This standard is applicable to cast-resin dry type transformers (“products”), which meet the definition of CNS 13390.

2. Product characteristics

2.1 The energy efficiency of the product (excluding tolerable errors) shall meet the following requirements:

Transformer Capacity (KVA)	Product Energy Efficiency Ratio
≤ 1000 KVA	\geq CNS standard by 0.3%
> 1000 KVA	\geq CNS standard by 0.1%

2.2 The product’s measured value of noise emission level shall be below the regulatory limit.

3. Materials, accessories and components

3.1 The product’s plastic parts weighing more than 25 g shall meet the following requirements:

(1) content of cadmium, lead, hexavalent chromium and mercury shall be below the regulatory limit. If recycled materials are used in the plastic components, or safety regulations require the addition of glass fiber to the components located in the high temperature area, the lead content of such components shall be less than 20 ppm.

(2) content of the following flame-retardants shall be below the regulatory limit:

(i) polybrominated biphenyls (PBBs);

(ii) polybrominated diphenylethers (PBDEs): monobrominated diphenylether, dibrominated diphenylether, tribrominated diphenylether, tetrabrominated diphenylether, pentabrominated diphenylether, hexabrominated diphenylether, heptabrominated diphenylether, octabrominated diphenylether, nanobrominated diphenylether, decabrominated diphenylether; and

(iii) chloroparaffins with 10-13 carbon atoms per molecule and chlorine content of greater than 50% by weight.

3.2 For the product’s surface coating material, the content of cadmium, lead, hexavalent chromium, and mercury shall be below the regulatory limit.

Date of Approval

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Environmental Protection Administration,

Executive Yuan,R.O.C.(Taiwan)

Date of Revisio

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4. Test methods and regulatory limits

The applicable test methods and regulatory limits for this standard are listed below.

Applicable Part	Regulated Substance	Regulatory Limit	Referenced Test Method
Whole product	noise	≤ CNS 13390 regulatory value by 6dB	CNS 599
Plastic	cadmium	< 2 ppm*	NIEA M104 NIEA M105 US EPA 3051A US EPA 3050B
Plastic	lead	< 2 ppm	NIEA M104 NIEA M105 US EPA 3051A US EPA 3050B
Plastic	hexavalent chromium	< 3 ppm	NIEA T303 US EPA 3060A US EPA 7196A
Plastic	mercury	< 2 ppm*	NIEA M317 NIEA M318 US EPA 7471B US EPA 7473
Plastic	polybrominated biphenyls (PBBs)	< 10 ppm*	US EPA 3540C US EPA 8081A US EPA 8082A US EPA 8270D
Plastic	polybrominated diphenylethers (PBDEs)	< 10 ppm*	US EPA 3540C US EPA 8081A US EPA 8082A US EPA 8270D
Plastic	chloroparaffins with 10-13 carbon atoms per molecule	< 10 ppm	US EPA 3540C US EPA 8081A US EPA 8082A US EPA 8270D
Coating material	lead	< 2 ppm	NIEA R353 US EPA 3051A

Green Mark Criteria 75

Coating material	Cadmium	< 2 ppm	NIEA R353 US EPA 3051A
Coating material	hexavalent chromium	< 3 ppm*	NIEA R309 USEPA 3060A US EPA 7196A
Coating material	mercury	< 2 ppm*	NIEA M317 NIEA M318 US EPA 7471B US EPA 7473

*: The test report shall provide evidence that the employed test methods have detection limits of less than 1/3 of regulatory limits.

5. Labeling

5.1 The name, address and consumer hotline of the Green Mark user shall be clearly printed on the product or its packaging.

5.2 The product or packaging shall bear a label reading "Energy Saving".

Revision History:

First revision: February 5, 2005

Second revision: January 3, 2014